

LISTING OF CLAIMS

1. (currently amended) A solid free-form fabrication system for producing a three-dimensional object, comprising:

a build material having nanofiller particulates dispersed therein;

a dispensing system adapted to ~~dispense a~~ ink-jet the build material having ~~nanofiller particulates dispersed therein;~~ and

a curing system adapted to harden the build material after being dispensed.

2. (original) A system as in claim 1, wherein the dispensing system includes an ink-jet printing dispensing system.

3. (original) A system as in claim 1, wherein the dispensing system is also adapted to dispense support material configured to support build material overhangs.

4. (original) A system as in claim 1, wherein the build material includes a UV curable material and the curing system includes a UV curing system.

5. (original) A system as in claim 1, wherein the build material includes a reactive build material and the curing systems includes a curing agent configured to be contacted with the reactive build material.

6. (original) A system as in claim 1, further comprising a milling system adapted to mill the build material after being dispensed but before being hardened.

7. (original) A system as in claim 1, further comprising a build platform configured to support the build material, said build platform also being configured to be lowered with respect to the dispensing system upon application of build material.

8. (original) A system as in claim 1, further comprising a build platform configured to support the build material, said dispensing system being configured to be raised with respect to the build platform upon application of build material.

9. (original) A system as in claim 1, further comprising a heating system configured to modify the temperature of the build material while within the dispensing system, thereby improving jettability of the build material.

10. (original) A system as in claim 1, wherein the nanofiller particulates are substantially from 1 nm and 500 nm in size, and are dispersed within the build material at from 0.1 wt% to 20 wt%.

11. (original) A system as in claim 1, wherein the nanofiller particulates are selected from the group consisting of inorganic nanoparticulates, organic-inorganic hybrid nanocomposites, curable liquid crystals, and combinations thereof.

12. (original) A system as in claim 11, wherein the nanofiller particulates are inorganic nanoparticulates selected from the group consisting of silica, alumina, titania, zirconia, hydroxyapatite, and combinations thereof.

13. (original) A system as in claim 11, wherein the nanofiller particulates are organic-inorganic hybrid nanocomposites selected from the group consisting of montmorillonite organo-clay, PMMA-clay nanocomposites, epoxy-clay nanocomposites, PMMA-co-MMA clay nanocomposites, starch-clay nanocomposites, and combinations thereof.

14. (original) A system as in claim 11, wherein the nanofiller particulates are curable liquid crystals selected from the group consisting of low viscosity oligomeric liquid crystals, reactive monomeric liquid crystals, and combinations thereof.

15. (withdrawn) A method for producing a three-dimensional object, comprising:

a) forming a jettable build composition including build material having nanofiller particulates dispersed therein,
b) jetting a portion of the build composition to form a build layer;
c) curing the build layer; and
d) repeating steps b) and c), wherein multiple build layers are contacted and accrued to form a three-dimensional object.

16. (withdrawn) A method as in claim 15, wherein the step of curing is by UV curing.

17. (withdrawn) A method as in claim 15, wherein the step of curing is by contacting and reacting the build material with a curing agent.

18. (withdrawn) A method as in claim 15, further comprising the step of milling the build layer before curing.

19. (withdrawn) A method as in claim 15, further comprising the step of adjusting the distance between the build composition and the build layer prior to the repeating step.

20. (withdrawn) A method as in claim 15, wherein the step of forming a jettable build composition includes heating the composition to a temperature that makes the composition jettable.

21. (withdrawn) A method as in claim 15, wherein the nanofiller particulates are substantially from 1 nm to 500 nm in size, and are dispersed within the build material at from 0.1 wt% to 20 wt%.

22. (withdrawn) A method as in claim 15, wherein the nanofiller particulates are selected from the group consisting of inorganic nanoparticulates, organic-inorganic hybrid nanocomposites, curable liquid crystals, and combinations thereof.

23. (withdrawn) A method as in claim 22, wherein the nanofiller particulates are inorganic nanoparticulates selected from the group consisting of silica, alumina, titania, zirconia, hydroxyapatite, and combinations thereof.

24. (withdrawn) A method as in claim 22, wherein the nanofiller particulates are organic-inorganic hybrid nanocomposites selected from the group consisting of montmorillonite organo-clay, PMMA-clay nanocomposites, epoxy-clay nanocomposites, PMMA-co-MMA clay nanocomposites, starch-clay nanocomposites, and combinations thereof.

25. (withdrawn) A method as in claim 22, wherein the nanofiller particulates are curable liquid crystals selected from the group consisting of low viscosity oligomeric liquid crystals, reactive monomeric liquid crystals, and combinations thereof.

26. (withdrawn) A solid three-dimensional object, comprising multiple layers of a cured build composition bound to one another, said cured build composition including build material having nanofiller particulates dispersed therein.

27. (withdrawn) An object as in claim 26, wherein the cured build composition is cured by UV energy.

28. (withdrawn) An object as in claim 26, wherein the cured build composition is cured by a curing agent.

29. (withdrawn) An object as in claim 26, wherein the nanofiller particulates are substantially from 1 nm to 500 nm in size, and are dispersed within the build material at from 0.1 wt% to 20 wt%.

30. (withdrawn) An object as in claim 26, wherein the nanofiller particulates are selected from the group consisting of inorganic nanoparticulates, organic-inorganic hybrid nanocomposites, curable liquid crystals, and combinations thereof.